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THE OIL SHALE ENVIRONMENTAL ADVISORY PANEL
THE ENVIRONMENT, AND THE FEDERAL PROGRAM -
PAST, PRESENT, AND FUTURE

by

William L. Rogers
Special Assistant to the
Secretary of the Interior
Missouri Basin Region

OIL SHALE OFFICE
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THE OIL SHALE ENVIRONMENTAL ADVISORY PANEL, THE ENVIRONMENT, AND THE FEDERAL PROGRAM - PAST, PRESENT, AND FUTURE

Introduction

"Six hundred billion barrels of oil - The National interest demands that it be developed."

"Oil shale development will turn the Rocky Mountains into a wasteland."

"Oil shale development will improve a desolate area."

"Oil shale development over my dead body!"

These statements, and many others like them that we have all heard, underline the people's concern regarding oil shale development and it behooves us all to listen to what has been called "The gathering storm called the people." The Department of the Interior is listening, and one concrete example of its response is the Oil Shale Environmental Advisory Panel.

I will review the program which occasioned the establishment of the panel, the panel's work to date, and future plans.

The Oil Shale Area

"Oil shales" are located in many places throughout the world and in the United States. We are, however, principally concerned today with those of the Green River Formation in the three-state region of Colorado, Utah, and Wyoming.

This oil shale region is large and diverse totaling about 25,000 square miles (16 million acres), of which some 17,000 square miles (11 million acres) are believed to contain oil shale of potential value for commercial development. The oil shales underlie several broad areas of high plateaus, plains, isolated mesas, and broad topographic basins. Figure 1 shows the outline of the oil shale lands in the three-state region.

The three-state oil shale region is sparsely populated and relatively isolated. The population of the area was approximately 119,400 in 1970. Average population density is approximately three people per square mile. The major communities in or adjacent to the oil shale region are Grand Junction, Rifle, Meeker, Craig, and Rangely, Colorado; Vernal, Utah; Rock Springs and Green River, Wyoming.

Some 72 percent of the oil shale lands are Federally owned and contain about 80 percent of the oil shale resources. These lands

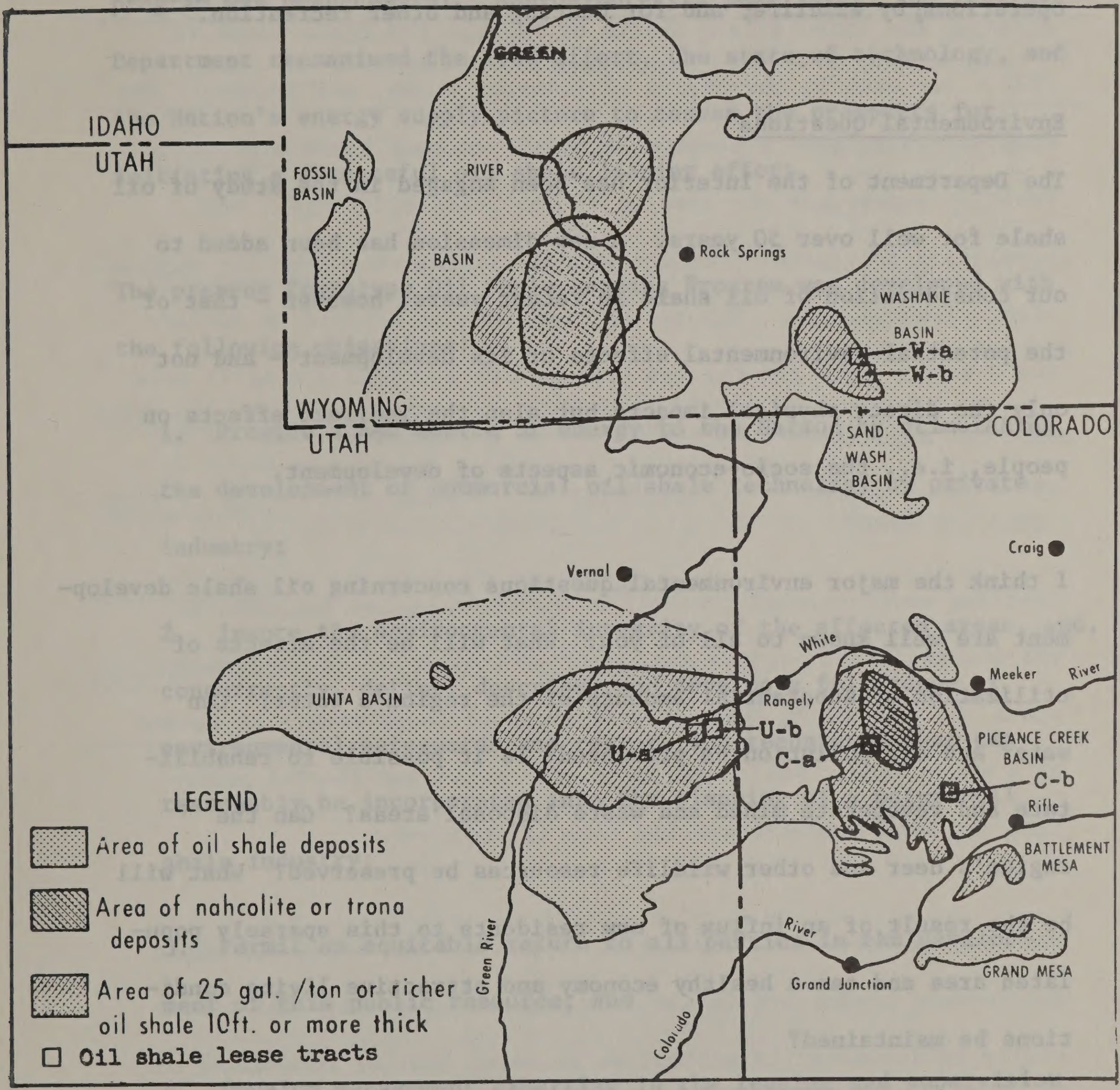

Figure 1. Oil shale areas in Colorado, Utah, and Wyoming.

are used today for grazing, oil and gas, and other extractive mineral operations; by wildlife; and for hunting and other recreation.

Environmental Questions

The Department of the Interior has been engaged in the study of oil shale for well over 50 years. A new dimension has been added to our consideration of oil shale in recent years, however - that of the potential environmental effects of its development - and not only the direct physical impacts but also the indirect effects on people, i.e., the socio-economic aspects of development.

I think the major environmental questions concerning oil shale development are well known to all of you: What will be the effects of utilization of substantial amounts of the region's water? Can water and air pollution be prevented? Is it possible to rehabilitate and revegetate mined and waste disposal areas? Can the region's deer and other wildlife resources be preserved? What will be the result of an influx of new residents to this sparsely populated area and can a healthy economy and attractive living conditions be maintained?

The Prototype Program

There has been no modern commercial development of United States oil shale. A 1968 effort to test the prospects for development of the Federal oil shale resources through a limited test leasing program was unsuccessful. Approximately 1 year later, the Interior Department reexamined the 1968 effort, the state of technology, and the Nation's energy supply picture to assess the prospects for initiating a successful oil shale leasing effort.

The present Prototype Oil Shale Leasing Program was developed with the following objectives:

1. Provide a new source of energy to the Nation by stimulating the development of commercial oil shale technology by private industry;

2. Insure the environmental integrity of the affected areas, and, concurrently, define, describe, and develop a full range of environmental safeguards and restoration techniques that can reasonably be incorporated into the planning of a mature oil shale industry;

3. Permit an equitable return to all parties in the development of this public resource; and

4. Develop management expertise in the leasing and supervision of oil shale resource development in order to provide the basis for future administrative procedures.

The program is limited and prototype in nature, involving the offering for lease of six tracts of Federal Oil Shale lands in 1974 - two each in the States of Colorado, Utah, and Wyoming. The tracts were offered singly for competitive cash bonus bidding. Table 1 summarizes the results of the lease offerings. The results of the lease offerings were startling, drawing very substantial bonus bids. The two Colorado tracts offered in January and February 1974 and the two Utah tracts in March and April were leased. No bids were submitted on the two Wyoming tracts in May and June, 1974.

Exacting environmental protection requirements are included in the leases, which provide for Government approval of development plans and for adding further environmental requirements if needed at a later date. Full compliance with State and Federal pollution and environmental quality laws is required.

The Federal Government would like to see all the major oil shale development techniques tested on a commercial scale. One potentially environmentally attractive process, that of recovering oil from the rock in place or in situ is not expected to be used on any of the four tracts which have been leased. It had been expected that the Wyoming tracts, if leased, would have been developed by

TABLE 1. - RESULTS OF PROTOTYPE OIL SHALE LEASE OFFERINGS

Date	Tract	High Bid	Lessees
January 8, 1974	Colo. C-a	$210,305,600	Standard Oil of Indiana Gulf Oil Corp.
February 12, 1974	Colo. C-b	$117,778,000	Atlantic Richfield Ashland Oil Shell Oil The Oil Shale Corp.
March 12, 1974	Utah U-a	$ 75,596,800	Sun Oil Co. Phillips Petroleum
April 9, 1974	Utah U-b	$ 45,107,200	White River Shale Oil Corp.
May 13, 1974	Wyo. W-a	No bids received	
June 11, 1974	Wyo. W-b	No bids received	

in situ processes. The selection and leasing for *in situ* development only of two additional oil shale tracts have been proposed. Nine tracts in Colorado and Utah have been nominated and are being reviewed to decide which tracts should be considered for leasing. This effort would fill out the prototype program to a total of six leases and insure the testing of the major development technologies.

The Panel Charter

The Department of Interior has over the years worked with a variety of advisory groups, some strictly technical with members drawn from industry and the scientific community, some made up of members drawn from user groups such as the old grazing district advisory boards, some of which are citizen groups. With the recognition of the community of oil shale interests shared by other Federal, State, and local government agencies, and the public, combined with the nature and goals of the prototype program, Interior has embarked on a new experiment in advisory groups. I refer, of course, to the Oil Shale Environmental Advisory Panel which I am honored to serve as Chairman.

The Oil Shale Environmental Advisory Panel was established by the Secretary of the Interior, Rogers C. B. Morton, with the issuance of its charter on February 27, 1974, after the first two oil shale lease offerings were successful. It operates under the provisions of the Federal Advisory Board Act (PL 92-463) and the Office of Management and Budget Circular A-63.

Membership on the panel (Figure 2) as provided by the charter includes one member each from nine bureaus and offices of the Department of the Interior. Other Federal members represent the Departments of Agriculture; Commerce; Health, Education, and Welfare; Housing and Urban Development; Transportation; and the Environmental Protection Agency. The Governors of each oil shale state may nominate three members - two of whom shall be state employees or legislators and one from among persons active in environmental matters. Each oil shale county may nominate one member who may be an employee of that jurisdiction. The nominees are appointed to the panel by the Secretary of Interior, with an additional three public members to be appointed by the Secretary from among persons active in environmental matters. The Chairman is appointed by the Secretary.

A full-time Executive Director and a secretary are provided as staff for the panel.

The objective of the Oil Shale Enviromental Advisory Panel is to advise the responsible officials of the Department of the Interior, particularly the Mining Supervisor of the Geological Survey and the appropriate District Managers of the Bureau of Land Management in the enforcement of the provisions of the prototype oil shale leases for the protection of the environment with particular emphasis on the enforcement of the oil shale lease environmental stipulations. The Assistant Secretary for Land and Water Resources, to whom the panel is responsible, has

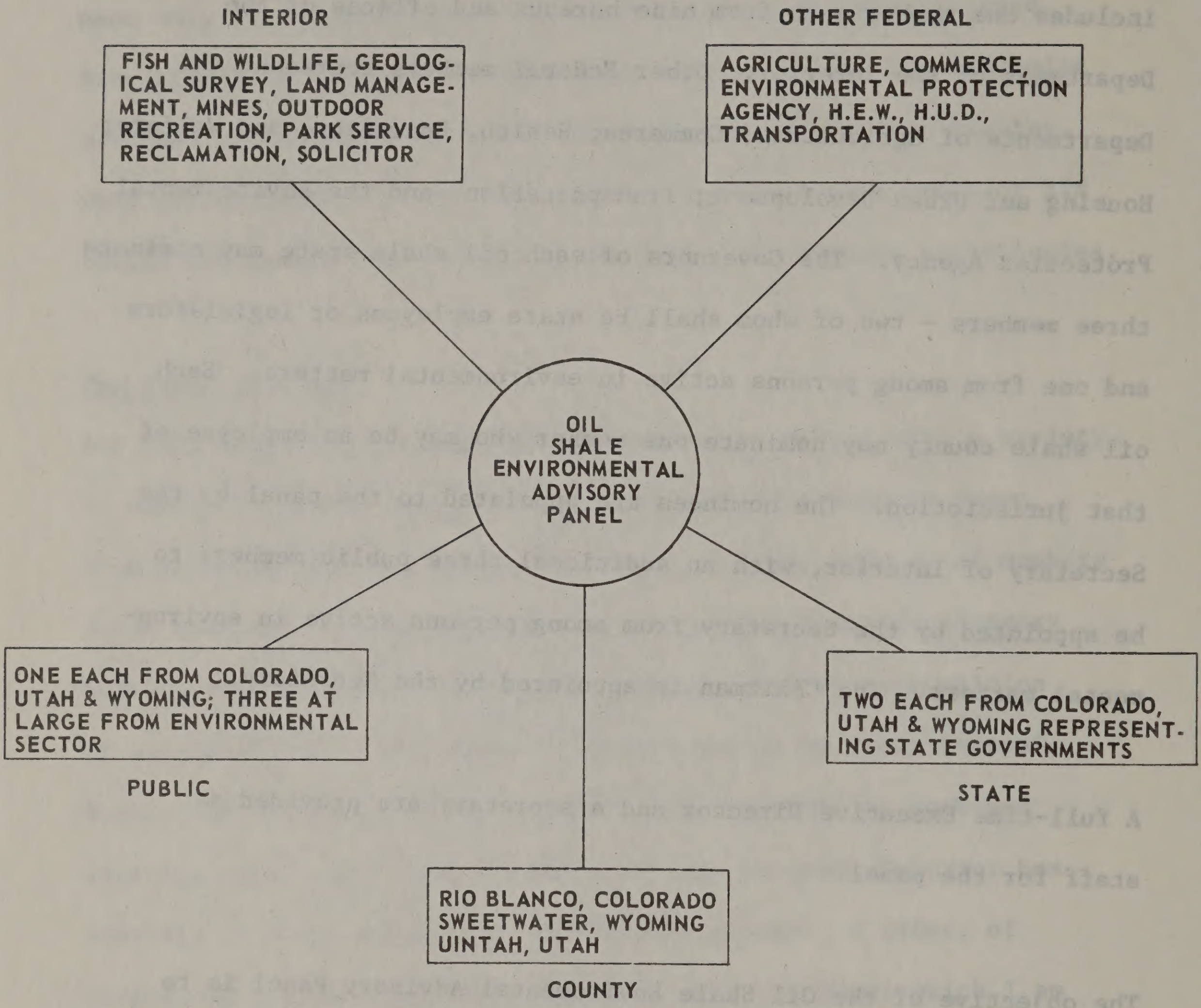
INTERIOR
FISH AND WILDLIFE, GEOLOGICAL SURVEY, LAND MANAGEMENT, MINES, OUTDOOR RECREATION, PARK SERVICE, RECLAMATION, SOLICITOR
OTHER FEDERAL
AGRICULTURE, COMMERCE, ENVIRONMENTAL PROTECTION AGENCY, H.E.W., H.U.D., TRANSPORTATION
OIL SHALE ENVIRONMENTAL ADVISORY PANEL
ONE EACH FROM COLORADO, UTAH & WYOMING; THREE AT LARGE FROM ENVIRONMENTAL SECTOR
PUBLIC
TWO EACH FROM COLORADO, UTAH & WYOMING REPRESENTING STATE GOVERNMENTS
STATE
RIO BLANCO, COLORADO
SWEETWATER, WYOMING
UINTAH, UTAH
COUNTY

Figure 2. Panel Membership

also asked the panel to review and advise on alternative sources of water for oil shale development and on the proposal to accelerate development of in situ oil shale technology.

The First Year - Operating Procedures

Given the charter and the 29 members of the panel from diverse backgrounds, the first question to be resolved was - How can a group like this operate effectively? With the assistance of members of the panel, four principles of operation were established, which I believe are important to the panel's success.

First, the panel operates by consensus rather than by "Robert's Rules of Order." Only as a last resort has advice of the panel been finalized on the basis of a vote. It seemed to be vitally important to take the extra time necessary to insure common understanding of a given situation by all of the members of the panel. There were those who predicted failure of such a policy, but our experience is that in over 1 year's operation of the panel, all our advice has been based upon a consensus of the panel, except in two cases, which are discussed later in this paper.

Second, because of the size of the group, it is not practical for the initial review of matters brought to the attention of the panel to be conducted by the total panel. Therefore, the procedure was established of appointing an ad-hoc committee to review a given submission and bring to the panel suggested advice as a point of departure for discussion of the panel toward a consensus. To avoid rigidity, the rule was established that there would be no permanent subcommittees of the panel. The committee structure is geared to the particular assignments given to the panel by Interior officials, and in this way the Chairman has the flexibility to appoint a committee suited to the particular requirement.

The third operating procedure established was to constantly give attention to keeping the panel abreast of developments in the oil shale field - both significant studies and analyses by workers in the field and actual developments on the tracts through site visits. A part of each meeting has been devoted to this purpose. A list of facilities the panel has visited and reports it has heard is shown in Table 2.

The fourth operating procedure of importance is that all activities of the panel are open to the public. All our meetings of the panel, meetings of subcommittees of the panel, most field trips, and files are open to public participation and inspection. I must say we are a little disappointed that the public has spent so little time pouring over our files.

TABLE 2. - OIL SHALE ENVIRONMENTAL ADVISORY PANEL

FIELD INSPECTIONS

Colorado Lease Tracts C-a and C-b	May 1974
Utah Lease Tracts U-a and U-b	June 1974
Paraho Operation (Anvil Points)	July 1974
Colony Development Operation	July 1974
Bureau of Mines Experimental Retort Site (Laramie)	Sept. 1974
Colorado Lease Tract C-b	May 1975
Utah Lease Tracts U-a and U-b	June 1975
Colorado Lease Tract C-a	Aug. 1975

TECHNICAL BRIEFINGS

Occidental Oil's Modified In Situ Process	Sept. 1974
Bureau of Mines (Now ERDA) Oil Shale Retorting Research	Sept. 1974
Federal Government Project Independence Oil Shale Report	Oct. 1974
Hydrologic Study of the Piceance Basin by USGS	Jan. 1975
Bureau of Mines Oil Shale Mining Research Program	Jan. 1975
Proposed Accelerated Oil Shale In Situ Research	Feb. 1975
Tar Sand Resources of the Uintah Basin, Utah	Feb. 1975
Oil Shale Revegetation Study by Colorado State University	May 1975
Regional Development and Land Use Planning Study for Northwestern Colorado	June 1975
SCS New Plant Materials Center at Meeker, Colo.	June 1975
Environmental Inventory and Impact Analysis for Piceance Basin by Thorne Ecological Foundation	Aug. 1975

The First Year - Technical Work

The work of the panel so far may be conveniently classified as being panel-initiated, lease-initiated, and Interior Department-initiated.

Guidelines:

At the first meeting in Denver, April 15, 1974, the panel initiated an immediate effort to provide constructive guidance to Department officials. The Chairman proposed and the panel agreed to the formulation of guidelines, a form of continuing advice in areas of major environmental concern for the day-to-day use of the responsible field officials of the Geological Survey and the Bureau of Land Management.

First, it was necessary to agree on what the major areas should be (Figure 3). Initially considered were:

Surface disturbance and effects
Rehabilitation and revegetation
Wildlife
Air quality
Water
Historic sites, antiquities, and aesthetics

Through discussion by the panel members, it was concluded that a major omission was the area of socio-economic or "people" impacts.

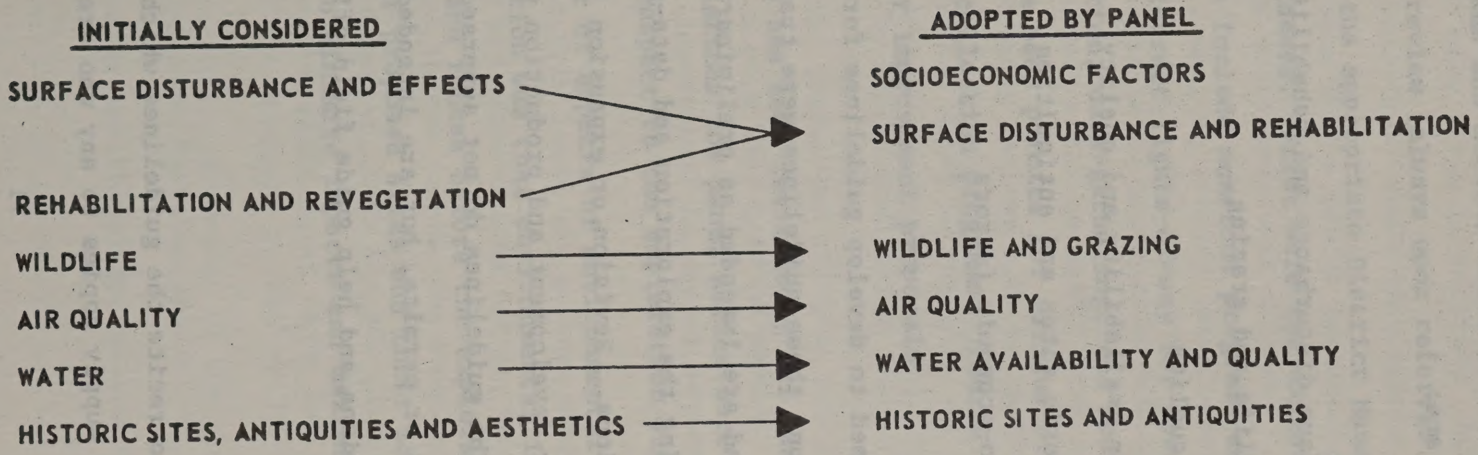
INITIALLY CONSIDERED
SURFACE DISTURBANCE AND EFFECTS
REHABILITATION AND REVEGETATION
WILDLIFE
AIR QUALITY
WATER
HISTORIC SITES, ANTIQUITIES AND AESTHETICS
ADOPTED BY PANEL
SOCIOECONOMIC FACTORS
SURFACE DISTURBANCE AND REHABILITATION
WILDLIFE AND GRAZING
AIR QUALITY
WATER AVAILABILITY AND QUALITY
HISTORIC SITES AND ANTIQUITIES

Figure 3. Areas of Panel Advice

Further discussion led to some consolidation and redefinition of topics as well as that addition. As finally adopted, the guideline subjects are:

- Surface disturbance and rehabilitation
- Wildlife and grazing
- Air quality
- Water availability and quality
- Historic sites and antiquities
- Socio-economic factors

Work groups were named to develop guidelines for adoption by the panel. Upon adoption, these guidelines were transmitted as memoranda from the Chairman and are intended as preliminary advice to Interior's field officials during the exploration and data-gathering phases of the lessees' operations. Revision or expansion is possible at some future date to cover development and production phases of the oil shale operations. The guidelines do not supersede provisions of the oil shale leases or permits, but are intended to amplify environmental provisions and help guide field officials in their enforcement.

I will not attempt to recite the guidelines which were developed, but will be happy to supply copies to any who are interested.

Review of Lease-initiated Matters:

The lease-related plans and actions which have come before the Oil Shale Panel for review (always upon referral by the Area Oil Shale Supervisor or the appropriate District Manager) have fallen into four general classes. First were the exploration plans of the lessees which include numerous programs and actions. Second have been off-tract rights-of-way for powerlines to serve the initial exploration, data-gathering, and monitoring installations. Third have been permits for various off-tract monitoring facilities or data collection programs. Fourth are off-tract road construction or improvement proposals.

Each of these items has been reviewed by all panel members. Concurrently recommendations for panel advice were formulated by a work group. With respect to the exploration plans, the advice focused on a number of aspects of environmental concern. An initial recommendation was that environmental inventories be made of proposed sites and routes before the exploration work began. A careful review of proposed sites and their location was advised in order to minimize impacts and maximize rehabilitation results. This involved such things as minimizing new road construction, location of drill pads in less erodible sites, location of sludge pits where they could not drain into stream courses, impoundments of any saline waters produced from wells drilled, etc. Specific recommendations were made on core analysis, logging techniques, seismic programs, elements to be analyzed for surface and underground water tests and sampling techniques including such things as trace elements in cores and vegetation. Meteorology and air quality programs were carefully reviewed as well as the adequacy of soils and vegetation studies. Relative to wildlife, the interrelationships of baseline data, monitoring, and fish and wildlife management plans were given careful attention. Recommendations were made on noise level monitoring during various stages of development.

Principal concerns expressed by the panel with regard to powerline rights-of-way and construction were routing and minimization of related surface disturbance and proper design to prevent electrocution of raptors, the oil shale region being an area frequented by eagles and other large birds of prey.

Off-tract monitoring facilities reviewed have included surface and underground water monitoring facilities related directly to the lease tracts and also for possible off-tract plant and disposal sites. Advice similar to that offered for on-tract activities was reiterated.

With regard to new access roads and improvement of existing roads, the panel has taken the position that such work should be limited to that required for safety until the ultimate corridors for commercial development are determined.

Review of Interior Department-initiated Matters:

The Area Oil Shale Supervisor requested panel review of proposed modifications of oil shale lease stipulations to eliminate the requirement for collection of meteorological data at ground level, and to require humidity measurements at only one point on the lessee's meteorological towers. After review and discussion, the panel concurred in these changes.

At the request of the Area Oil Shale Supervisor, a contract study on detailed development plan formulation was reviewed relative to its compatibility with previous panel advice. One recommendation was that the "DDPs" be designed to exclude proprietary information so that they can be public documents in their entirety.

A separate category of matters reviewed by the panel has been special requests from the Office of the Secretary for advice on oil shale matters not related to immediate lease tract operations. The first of these was a request from the Assistant Secretary of the Interior for Land and Water Resources on August 2, 1974, for panel review of a Bureau of Reclamation study, Alternative Sources of Water for Prototype Oil Shale Development, Colorado and Utah.

After detailed review and spirited debate at the Park City, Utah meeting in October 1974, consensus was reached on six recommendations and a vote taken on a seventh which was favored by a majority of the panel members.

The panel recommendations were lengthy and rather detailed. Briefly summarized, they were that evaluation should not be limited to any individual projects or sources; that a regional study should be conducted under Federal leadership, but involving State and local governments and Indian tribes; that the study should include environmental-impact analysis, should be directed toward meeting maximum production levels from the prototype leases and to serve other multiple uses such as community and Indian needs as well; further, it was recommended that where possible, water development and transportation facilities should be combined to serve more than one oil shale operation so as to minimize the number of water developments.

The second of the special requests for panel advice concerned a proposed "Strategy to Stimulate Oil Shale Development by In Situ Processing." The proposal involved a significantly accelerated Government research program concurrently with the selection and offering for lease of two additional tracts of Federal oil shale land for development by in situ methods only. I mentioned this effort earlier in discussing the prototype program.

After lengthy discussion and debate, the panel at its Salt Lake City, Utah meeting in February 1975 adopted the recommendations of its work group with a single dissenting vote. Those recommendations to the Office of the Secretary of the Interior were:

1. That the panel endorses the need for such a program.

2. That the proposed approach has merit and should be pursued.

3. That the panel be asked to develop on a continuing basis recommendations for environmental safeguards, as for example, on eventual site selection, the lease, bidding system, etc. Certain types of lands or specific areas might be identified and precluded from consideration for leasing.

Examples of Panel Impacts

It would be difficult to itemize specifically all areas where the advice of the panel has affected activities of the lessees and the officials of the Department of Interior. We can cite some, however. New roads and trails have been minimized. Elements to be sampled in water and air monitoring programs have been added to those initially proposed. A microenvironmental study program has been initiated by one operator. Powerlines are being constructed so as to prevent electrocution of eagles and other large birds of prey. Panel advice to the Area Oil Shale Supervisor on various elements of the lessees' exploration and data programs assisted him in developing conditions of approval, thus improving those programs. On occasion, experts on the panel have identified inconsistencies and redundancies in data collection which have helped refine and make the programs more useful. The panel has offered an adage in this area, "No data for data's sake," which has helped keep these efforts in proper perspective and led to the elimination of some useless requirements.

The panel guidelines on wildlife and grazing were used by all lessees in developing their biologic baseline data collection programs. Comments and suggestions on the early quarterly summary reports of the lessees have helped to shape them into more useful and informative documents. After the panel's review of alternative water sources for oil shale a multi-objective planning effort was initiated and is being carried forward under leadership of the Bureau of Reclamation along the lines recommended by the panel. Again, after panel review the new in situ effort has been initiated and, as specifically recommended by the panel, it will review and advise the Department on that program.

In reviewing the one and one-half year history of the panel, it is interesting to note that on a number of occasions, suggestions were made that the panel involve itself in activities considerably beyond the scope of its charter. On one occasion several members felt that the panel should become involved in the environmental impacts of the Colony oil shale venture, a venture contemplated on private land and completely outside the scope of the Federal Prototype Program. On another occasion it was suggested that the panel review the study led by the Federal Energy Administration, which analysed the part oil shale could play in Project Independence. Other examples have been various suggestions that the panel involve itself in strictly legal questions - such as Interior authority to authorize use of Federal lands in addition to the leased tracts and the interpretation of various lease provisions. It was necessary for the Chairman to reiterate that the panel charter limits its activities to providing advice to line officials of the Department of the Interior on environmental aspects of the Federal

Prototype Oil Shale Program, and that the panel must concentrate on performing within its charter.

The Year Ahead

Within the coming year the panel will be asked to provide advice to the Area Oil Shale Supervisor on detailed development plans submitted by the lessees. Herein, of course, is the very heart of the panel's activity. Effects of exploration plans represent minor environmental impacts compared to the actual development of the tract, the disposal of spent shale, the construction and operation of retorts with attendant impacts on the environment, and other potential impacts of a full-scale operation.

The panel is gearing itself for responsive action in providing advice on the detailed development plans. We have established six functional ad-hoc work groups in the areas of principal environmental concern whose responsibility will be to review each of the detailed development plans in their area of expertise. These six work groups are shown in Figure 4.

In addition, we have established three ad-hoc work groups, one for each of the tract operations, C-a, C-b, and for U-a and U-b combined. Their function will be to review the detailed development plans for their total effect on the environment and give advice

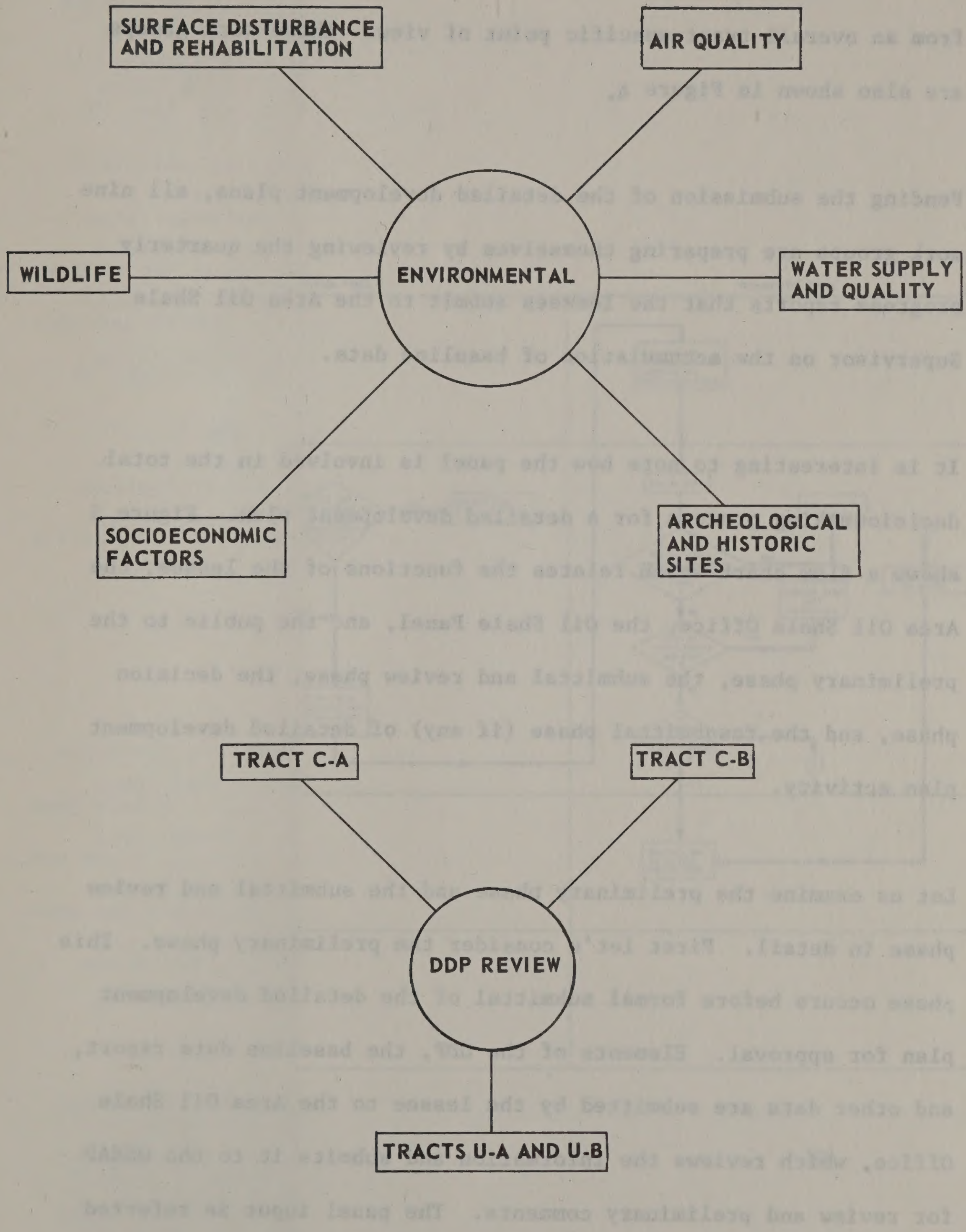

Figure 4. Oil Shale Environmental Advisory Panel Work Groups

from an overall tract specific point of view. These work groups are also shown in Figure 4.

Pending the submission of the detailed development plans, all nine work groups are preparing themselves by reviewing the quarterly progress reports that the lessees submit to the Area Oil Shale Supervisor on the accumulation of baseline data.

It is interesting to note how the panel is involved in the total decisionmaking process for a detailed development plan. Figure 5 shows a flow chart which relates the functions of the lessee, the Area Oil Shale Office, the Oil Shale Panel, and the public to the preliminary phase, the submittal and review phase, the decision phase, and the resubmittal phase (if any) of detailed development plan activity.

Let us examine the preliminary phase and the submittal and review phase in detail. First let's consider the preliminary phase. This phase occurs before formal submittal of the detailed development plan for approval. Elements of the DDP, the baseline data report, and other data are submitted by the lessee to the Area Oil Shale Office, which reviews the information and submits it to the OSEAP for review and preliminary comments. The panel input is referred back to the Area Oil Shale Office, which prepares total comments and recommendations for consideration of the lessee.

FEDERAL PROTOTYPE OIL SHALE PROGRAM
AREA OIL SHALE OFFICE

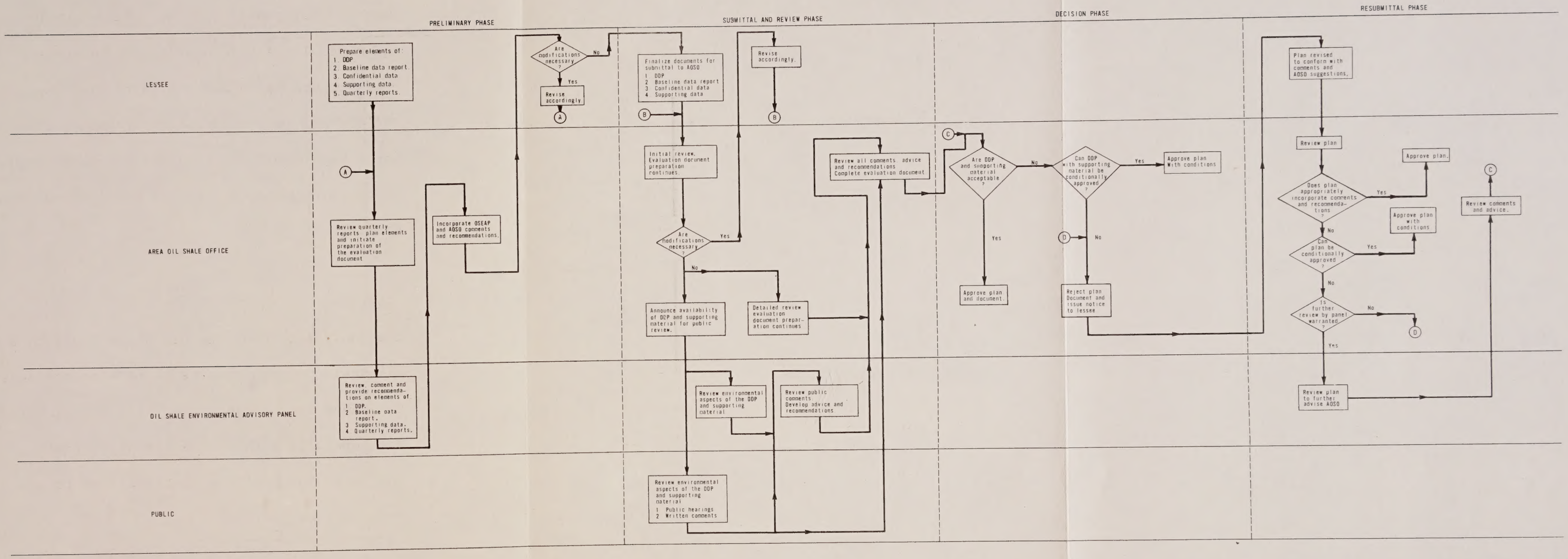
PRELIMINARY PHASE
SUBMITTAL AND REVIEW PHASE
DECISION PHASE
RESUBMITTAL PHASE
LESSEE
AREA OIL SHALE OFFICE
OIL SHALE ENVIRONMENTAL ADVISORY PANEL
PUBLIC
Prepare elements of: 1. DDP 2. Baseline data report. 3. Confidential data 4. Supporting data 5. Quarterly reports.
Review quarterly reports plan elements and initiate preparation of the evaluation document
Review, comment and provide recommendations on elements of 1 DDP. 2 Baseline data report. 3 Supporting data. 4 Quarterly reports.
Incorporate OSEAP and AOSO comments and recommendations.
Are modifications necessary ?
No
Yes
Revise accordingly.
A
Finalize documents for submittal to AOSO 1 DDP 2 Baseline data report 3 Confidential data 4 Supporting data
B
Revise accordingly.
Initial review. Evaluation document preparation continues.
Are modifications necessary ?
Yes
No
Announce availability of DDP and supporting material for public review.
Detailed review evaluation document preparation continues
Review environmental aspects of the DDP and supporting material
Review public comments. Develop advice and recommendations.
Review environmental aspects of the DDP and supporting material 1 Public hearings 2 Written comments
Review all comments, advice and recommendations. Complete evaluation document.
C
Are DDP and supporting material acceptable ?
No
Yes
Approve plan and document.
Can DDP with supporting material be conditionally approved ?
Yes
Approve plan With conditions
D
No
Reject plan Document and issue notice to lessee
Plan revised to conform with comments and AOSO suggestions.
Review plan
Does plan appropriately incorporate comments and recommendations ?
Yes
Approve plan.
No
Can plan be conditionally approved ?
Yes
Approve plan with conditions
No
Is further review by panel warranted ?
No
D
Yes
Review plan to further advise AOSO
Review comments and advice.
C

Figure 5. Decision-Making Procedure for a Detailed Development Plan

Now let us look at the submittal and review phase. In this phase the documents are finalized for formal submittal to the Area Oil Shale Supervisor's office. After initial review by the Area Oil Shale Office and modifications, as necessary, the Area Oil Shale Supervisor announces the availability of the DDP and supporting material for public review, refers the DDP to the panel for review, and schedules public hearings. The output from the public hearings comes to the panel and the panel provides advice in the light of the DDP and in consideration of public comments to the Area Oil Shale Supervisor. The Supervisor then completes the evaluation document in consideration of panel advice and results of the public hearings.

Assessment

The contribution of the Oil Shale Panel to a successful prototype oil shale program remains to be seen and indeed will certainly best be judged in the context of history. I believe, however, I can see - and hopefully with reasonable objectivity - that the panel has made the following positive contributions to the Prototype Oil Shale Program thus far:

1. The interior officials involved have been furnished with a set of guidelines in areas of principal environmental concern which have assisted them in administering the program to date.

2. Federal-State relations and communications have been substantially enhanced by State membership on the panel.

3. Public knowledge and awareness, and particularly the knowledge and awareness of environmental groups as to the conduct of the prototype program for the protection of the environment, has been enhanced.

4. Proposals of the lessees have received public attention in all areas from construction of roads, to powerlines, to water impoundments, to off-site spent shale disposal, and to all other aspects of the operation.

5. The panel has demonstrated an ability for the Federal Government, State governments, and representatives of the environmental community, to work cooperatively in achieving the objective of all citizens of this Nation to develop a means of supplying the energy demand of the Nation while protecting the environment.

Questions have been raised in the course of the first year's panel operation as to the cost of the panel and more important, of course, the cost effectiveness of the panel. The direct costs of the panel in the first year of its operations were approximately $58,000. It is, of course, impossible to place a monetary value on the advice of the panel, but in consideration of the tremendous investment of the lessees and the immeasurable importance of proper protection of the environment during oil shale development, I submit that the cost of the panel's operation is minimal.

Whatever success the panel has achieved so far is heavily dependent on three factors, which will also be of vital importance to success in the future.

First is the quality of the panel membership. The high level of intelligence, integrity, and objectivity possessed by the members and their willingness to listen and learn while faithfully espousing their own point of view are impressive.

Second is the unique ability of the Executive Director to keep the work of the panel on tract and to keep all members informed and abreast of developments.

Third is the cooperation and responsiveness of the Interior officials whom the panel advises and that of the lessees who have been willing to publicly discuss and explain their plans and progress with the panel.

The real test of the panel's ability remains in the future. It is my intention, which I am sure is shared by the members of the panel, to work conscientiously toward generation of advice on the detailed development plans, which will enable the prototype oil shale program to proceed and to produce sound answers to the environmental questions surrounding the development of oil shale.

# # #

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______________________, 1975, The Oil Shale Environmental Advisory Panel, First Annual Report: Denver, Colo., 19 p. with appendices